

Geological Sciences Today: A Message from the Chair

It is with great enthusiasm for the future of the department that I became the chair seven months ago. The department is fundamentally sound but faces challenges as it evolves into an outstanding research department, strengthens its core programs, and diversifies into the broad range of fields that now constitute the earth sciences. I am confident that the department will meet these challenges as it approaches the 40th anniversary of its founding in 1966.

Alumni can play an important role in recruiting students, helping with employment needs for graduating students and for those in all

stages of their careers. Over the course of my career I have observed that those who move upward are often pulled up by someone else. You may have experienced this in your own career. As you read this profile of the department as it is today, I encourage you to consider how you might help the department, our students, and your fellow alumni as we strive to move forward and upward.

Chris Barton
Chair and Professor, Geological Sciences

Department of Geological Sciences

The mission of the department is to educate our students, the region, the nation, and the world about the earth, its resources, natural hazards, and an environment now dominated by one species—humans. We fulfill our mission through the practice of earth science research by our students and faculty. The research products are undergraduate honors theses, master's theses, Ph.D. dissertations, journal articles, books, maps, and service on regional, national, and international advisory boards.

Enrollments for 2004/2005:

B.A.	8
B.S.	15
M.S.	32
M.S.T.	26
Ph.D.	5

The Faculty: their starting year at WSU and areas of research

Abinash Agrawal, 1995	Aquifer Restoration, Environmental Geochemistry and Watershed Analysis
Christopher Barton, 2004	Statistical Quantification of Earth Science patterns, Energy Resource and Hazard Assessment
Cindy Carney, 1986	Carbonate Sedimentology, Petrology, and Diagenesis
Songlin Cheng, 1989	Hydrogeochemistry, Isotope Hydrology
David Dominic, 1987	Sedimentology, Geostatistical Characterization of Sedimentary Aquifers
Bryan Gregor, 1972	Global Rock Cycle, General Education
Ernest Hauser, 1995	Geophysical Imaging, Ground Penetrating Radar
Allen Hunt, 2004	Quantification of Earth Processes
Robert Ritz, 1989	Ground Water Flow and Transport, Geostatistics
William Slattery, 1994	Science Education, Sequence Stratigraphy
Sarah Tebbens, 2004	Quantification of Earth Science Patterns and Plate Tectonics
Doyle Watts, 1999	Remote Sensing and Tectonics

Retired faculty and their years at WSU:

Ken Kramer	1967–1995
Byron Kulander	1979–2003
Paul Pushkar	1968–1999
Ben Richards	1966–1999
Ron Schmidt	1970–1992
Karel Toman	1970–1992
Paul Wolfe	1966–2003

Retired faculty can be contacted through the department office.

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Did You Know?

...Two of our faculty are also alumni of the department: **Songlin Cheng, M.S. (1980)** and **Robert Ritz, M.S. (1983)**!

...We have nearly 1,000 alumni!

...In 2006, the department will celebrate its 40th anniversary!



Remote Sensing and Geographic Information System (GIS)

How do ecologists know the global state of earth's rain forests? How do meteorologists track hurricanes? How do engineers and archeologists know what is just a few feet below the ground? The answer is remote sensing. Sensors in aircraft and satellites detect waves scattered and emitted by objects on the surface of the ground. Satellites detect mineral deposits, hurricanes, toxic algae blooms in lakes and coastal areas, and crops affected by insects or drought. **Doyle Watts** uses remote sensing to detect trees attacked by gypsy moths. GIS is used to construct topographic maps, geologic maps, and to display any data whose location can be shown on a map. **Songlin Cheng** has developed two new undergraduate/graduate level courses taught at WSU's \$1 million GIS Lab.

Nonlinear Geophysics

The year 2004 has seen the addition of three faculty whose research is focused on the analysis, modeling, and theory of nonlinear behavior in geophysical processes using the mathematical tools and approaches of fractals, chaos, scaling, critical phenomenon, nucleation, cellular automata, and self-organizing and complex systems. The theoretical research of **Alan Hunt** has led to a unified theory for fluid flow, solute diffusion, electrical conductivity, and air permeability in saturated media. **Sarah Tebbens** studies scaling in natural systems, has developed and applied new cellular automata models, and studies the scaling of coastal change. **Chris Barton** focuses on the statistical quantification and forecasting of complex patterns created by natural processes including petroleum assessment, bedrock fracture networks, floods, hurricane landfalls, and shoreline position.

Summer Field Camp

The department continues to operate its popular five-week central-Appalachian summer field camp out of Marysville, Tennessee. The camp provides our undergraduate and master's students, as well as students from other colleges and universities, with hands-on field experience in bedrock mapping, structural geology, sedimentology, and stratigraphy.

Petrified Wood Specimen Donated

In September 2004, the department received a gift from **Brian and Marie Palmer-Smith** of Washington Township, Ohio. The specimen is *Araucarioxylon arizonicum*, a petrified conifer from the Triassic (200–250 million years old), Chinle Formation, Arizona, and weighs approximately 2,000 pounds. The specimen has been placed along the walkway on the south side of Brehm Laboratory.



